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## PICKUP BOX REMOVED RPO ZW9 PROGRAM

## Alterations to Complete Vehicles

Persons who complete (certify) Pickup Trucks with removed Pickup box RPO ZW9 should be aware that this type of activity would impose upon them the corresponding responsibility for ensuring that the units as sold are in compliance with all applicable safety and/or emissions (including noise and RFI) requirements. Specific questions concerning compliance or certification to these requirements should be directed to the vehicle alterer's legal counsel or the National Highway Traffic Safety Administration, the Environmental Protection Agency, the California Air Resources Board, or in Canada, the Ministry of Transport or the Canadian Department of Commerce.

The Environmental Protection Agency has provided an explanation of the policy they will follow regarding the modification by the secondary manufacturers of complete Light Duty Trucks prior to sale and delivery to the ultimate purchaser. This explanation is contained in a letter from C. N. Freed of the EPA to M.H. McBride of the Recreation Vehicle Industry Association, dated July 13, 1979. A portion of this letter states:

"Secondary manufacturers are not manufacturers under the [Clean Air] Act when the following conditions are met:

1. The vehicles produced by a secondary manufacturer conform in all material respects to the design specification in the original manufacturer's application for certification (hereafter 'Application'); and

2. The weight of the vehicles produced by a secondary manufacturer, including the weight of fuel at nominal tank capacity, is no more than 500 lbs. above the maximum vehicle weight."

No frontal area restrictions will apply to secondary manufacturers who comply with the conditions above. However, every vehicle sold to an ultimate purchaser must be covered by emission warranty mandated by section 207(a) of the Act. Secondary manufacturers who do not meet the above conditions will be considered manufacturers under the Act and will be required to ensure that the vehicles they produce are covered by a certificate of conformity.

The Maximum vehicle weight for a given vehicle is determined by:

A) Subtracting 300 lbs. from the highest loaded vehicle weight (see 40 CFR 86.082-2 for loaded vehicle weight definition and the table at 40 CFR 86.129-94) associated with the test weight listed in the application for the vehicle, and

B) Adding the weight of all options that are offered by the original manufacturer for the applicable truck line that were not included in the curb weight reported in the application.

In the case of mutually exclusive options, only the weight of the heavier option is to be used when computing the maximum vehicle weight.

(Alterations – continued from previous page)

In addition, the California Air Resources Board has provided an explanation of the policy they will follow regarding the modification by the secondary manufacturers of complete Light Duty Trucks prior to sale and delivery to the ultimate purchaser. This explanation is contained in the California Exhaust Emission Standards and Test Procedures for Passenger Cars, Light Duty Trucks and Medium Duty Vehicles, adopted March 22, 2012 and dated December 6, 2012.

A portion of this document states:

"Certification, if granted, is effective only for the vehicle/test group described in the original manufacturer's certification application.

Modifications by a secondary manufacturer to vehicles/engines shall be deemed not to increase emissions above the standards under which those vehicles/engines were certified and to be within the original certification if such modifications do not: (1) increase vehicle weight more than 10 percent above the curb weight, increase frontal area more than 10 percent, or result in a combination increase of weight plus frontal area of more than 14 percent; or (2) include changes in axle ratio, tire size, or tire type resulting in changes in the drive train ratio of more than 5 percent; or (3) include any modification to the emission control system. No originally certified vehicle/engine which is modified by a secondary manufacturer in a manner described in items (1) through (3) of the preceding sentence may be sold to an ultimate purchaser, offered or delivered for sale to an ultimate purchaser, or registered in California unless the modified vehicle/engine is certified by the state board in accordance with applicable test procedures to meet emission standards for the model year for which the vehicle/engine was originally certified. For the purposes of this subsection, "secondary manufacturer" means any person, other than the original manufacturer, who modifies a new motor vehicle prior to sale to the ultimate purchaser."

Those who wish to remove the Pickup box from a Pickup Truck for the purpose of installing special equipment or another type of body should be further advised that a Pickup may require modification in one of the following areas. Before a decision is made to alter a C/K Pickup Model, please be advised of the following considerations:

## Vehicle:

Analyze the vehicle specifications for product content. The option content of a particular vehicle will determine which if any of the five areas of modification might not be applicable to the vehicle alterations contemplated.

## Service Parts:

The service parts and related service part number as outlined in the five areas of modification may be ordered through your local Chevrolet/GMC Dealer. Contact your Dealer's Service Parts Representative for availability and price.

## Areas of Modification:

1. Fuel filler neck assembly, housing, and ground strap.
2. Rear axle vent hose.
3. Removal of any protective covering on fuel tank system.

## CMVSS and FMVSS

Compliance of Canadian and Federal Motor Vehicle Safety Standards will be affected by Upfitters removing Pickup Box and Rear Bumper to install a second unit body:

MVSS 105 – Hydraulic brake (Vehicles greater than 3500 kg (7716 lb) GVWR)

MVSS 108 – Lighting Equipment

MVSS 111 – Rear View Mirrors

MVSS 135 – Light Vehicle Brakes, applies to vehicles 3500 kg (7716 lb.) GVWR or less

MVSS 204 – Steering Control Rear Displacement

MVSS 208 – Occupant Crash Protection

MVSS 219 – Windshield Zone Intrusion 4536 kg (10,000 lb.) or less

MVSS 301 – Fuel System Integrity, trucks

*Refer to the generic (non-VIN Specific) Incomplete Vehicle Document for detailed requirements now available on the GM Upfitter Integration website (http://www.gmupfitter.com/pages/incomplete-vehicle-documents).*

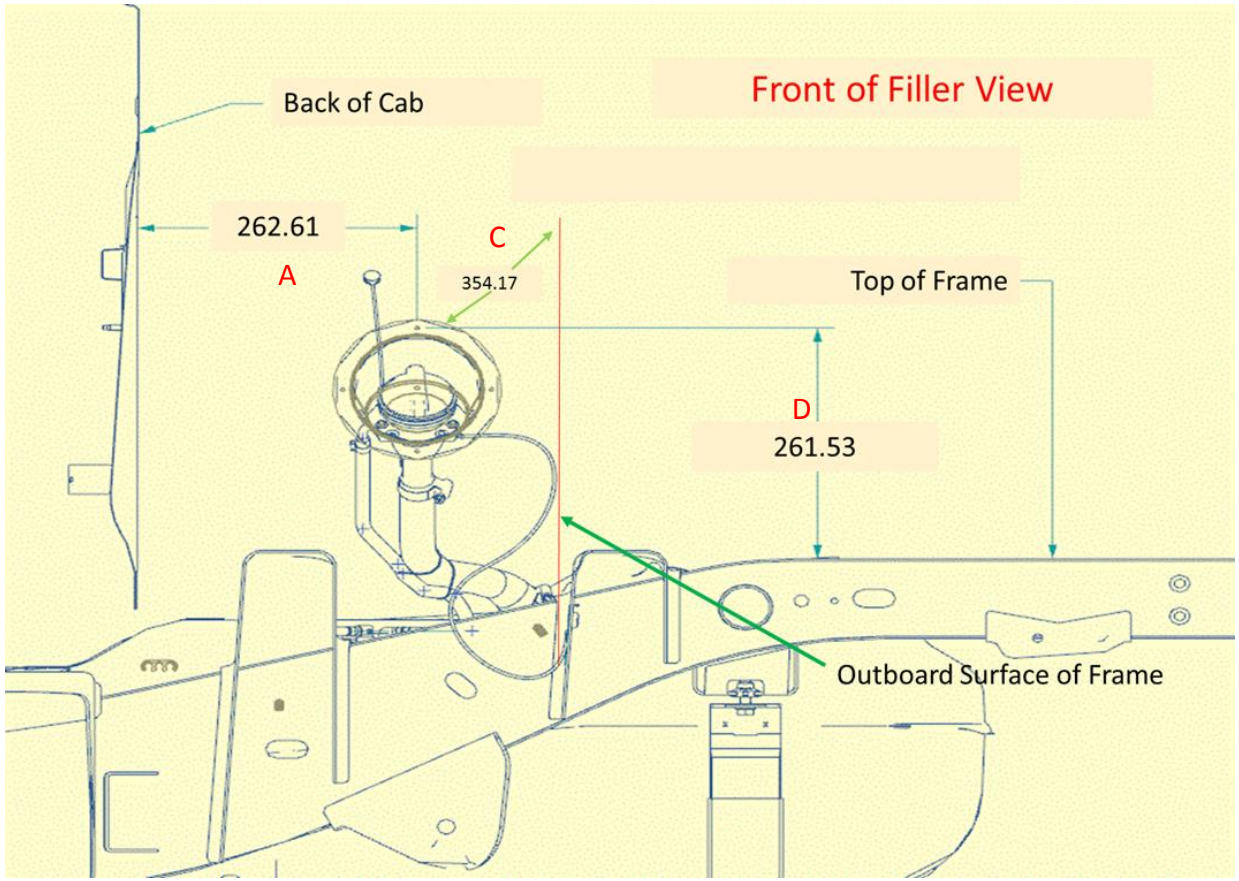
## Box Removed RPO ZW9 Fuel Fill System Modifications for Gasoline fueled Vehicles with Fuel Filler Pipe RPO BJA

Certain guidelines must be adhered to in modifying the fuel fill, fuel vent system systems, axle vent and grounding to ensure that the completed product meets the manufacturer's requirements.

1. The fuel fill and fuel vent lines must be installed such that there is adequate clearance between them and the chassis parts under all operating conditions, including protection from road debris. Body attachment brackets must also be located such that there is adequate clearance to all fuel system components, such as the fuel lines, fuel vent lines, and the fuel level sending unit, under all operating conditions. This also applies to the axle vent system.
2. Removal of any and all shipping fuel tank protection consisting of wraps or covers must be done prior to upfit of truck. The truck should not be exposed to the environment without these wraps or covers being in place prior to upfit.
3. For use of option BJA both the fuel fill and fuel fresh air line vent hoses must be routed (and supported, if needed such that there are no sags or kinks. Routing and location shown on page PB-7 of this document are required in order to meet vehicle Federal US EPA and California emission and certification requirements with BJA fuel filler pipe.
4. The fuel fill, fuel fresh air line, fuel vent system and axle vent hose should be restrained in the upfit vehicle. This is necessary to avoid chaffing, fretting, rubbing, perforation, etc. which may cause failure to pipes and hoses.
5. The fuel fill pipe inlet area of the fill pipe assembly maintained at 35 degrees from ground (horizontal).
6. Both the fill, fuel vent hoses and axle vent must be routed (and supported, if needed) such that there are no sags or kinks. As viewed from the filler neck, pipes and hoses must have a min downward slope of 4º of downward slope at any location.
7. A minimum of 8.0 inches of fill hose must be maintained between the filler neck and the fuel tank as measured in an outboard direction from the tank surface (at the fill hose nipple) to the outlet end of the filler neck.
8. The fuel fresh air line should be carefully unattached from the non BJA fuel fill neck area, see PB-9, if BJA is used.
9. For BJA the fuel fill hose clamp between the fuel tank inlet check valve and the fill pipe hose is to be tightened to 3.5 Nm +/- 0.5Nm (dynamic) torque. The clamp between the fuel fill pipe inlet and the fill pipe hose is to be tightened to 5.5Nm +/-0.5 Nm (dynamic), and 2.0 Nm static torque (as assembled at the fill pipe supplier). See PB-8
10. The BJA fuel vent hose clamps are to be tightened to 2.49 Nm torque. See PB-8
11. Attach the fuel fresh air line from procedure on Line#7 to the same area of the fuel fill neck area of PN **84139591**. Direct the end of the fuel fresh air line down to prevent moisture intrusion. Also secure the end of the axle vent tube in the same area facing upward. Install axle vent so the shipping attachment barb does not cause chaffing on any other components. Secure with Special Use Strap Truck PN **11509086/87** and trim off excess. See PB-10.
12. Re Install fuel tank vent pipe to fuel tank.
13. Install ground strap securely torqued dynamically to 9 (+/- 1.5) Nm or statically 7.5-10.5 Nm to the frame with bolt insuring proper grounding.

14. **Inspect and make corrections to the fuel system to make sure there are NO Openings or unmade connections that will allow the escape of liquid fuel or fuel vapors**.
15. Reinstall carryover gas cap.
16. If a RPO ZW9 truck was modified with option RPO BJA fuel filler hose, the fuel fill cap PN **23361879** may be required and available at your Chevrolet Dealer to be installed. Otherwise use the fuel fill cap that comes with the RPO ZW9 truck.

Chevrolet Colorado/GMC Canyon (1/T) ZW9 Option & RPO BJA non-E85 Fuel Filler/Positioning

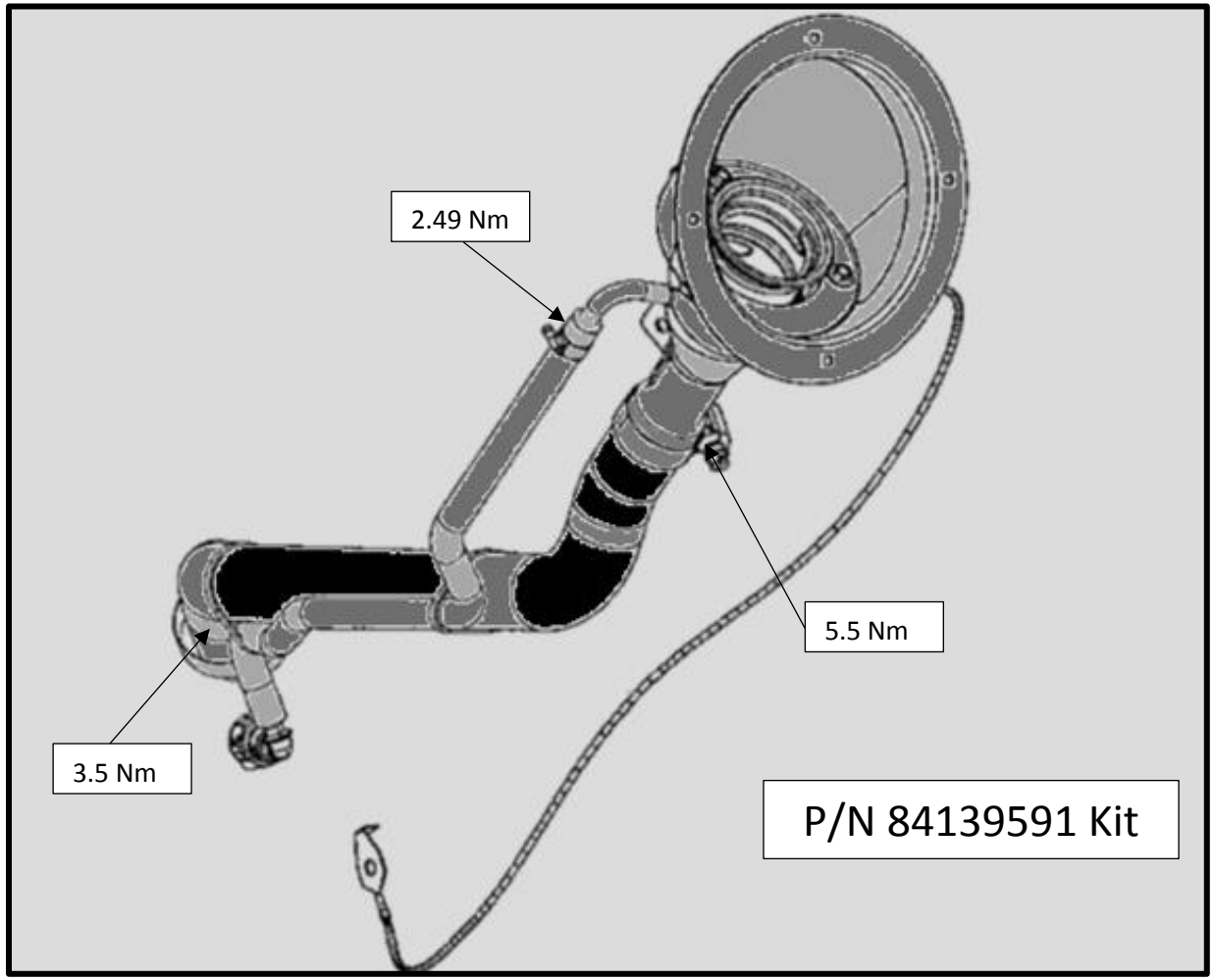



**(RPO-BJA) Chevrolet Colorado/GMC Canyon (1/T) ZW9 Fuel Filler Assembly (non-E85)**
****Scoop Location / Positioning Tolerance**

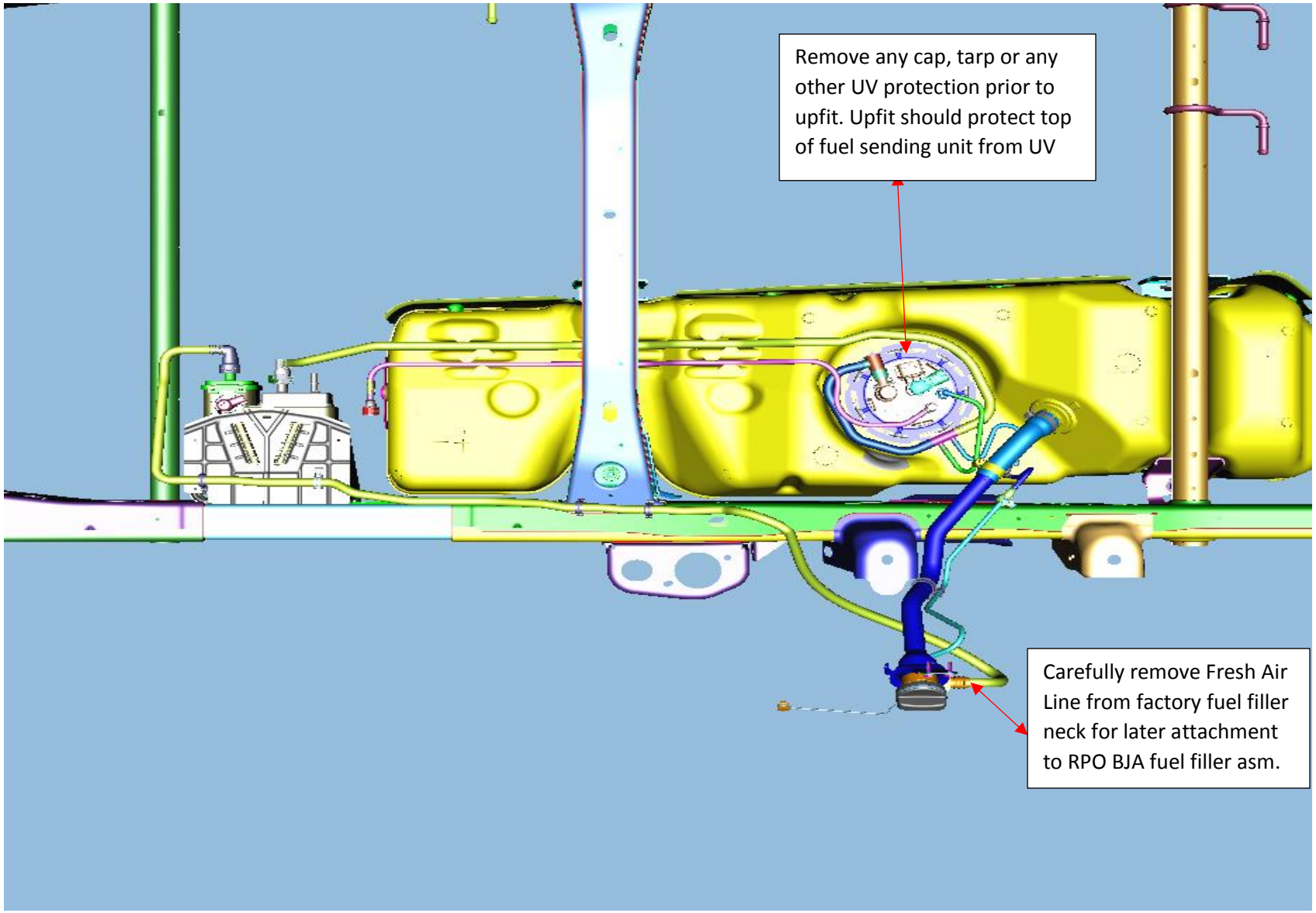
| | | |
|---|---|---|
| **A** | **262.61 (10.39”)** | **+/- 25.4** |
| **C** | **354.17(13.95”)** | **+/- 13.0** |
| **D** | **261.75(10.31”)** | **+/- 13.0** |

**Fuel Filler Scoop location & routing within above tolerance zone
are validated by GM to meet Federal requirements

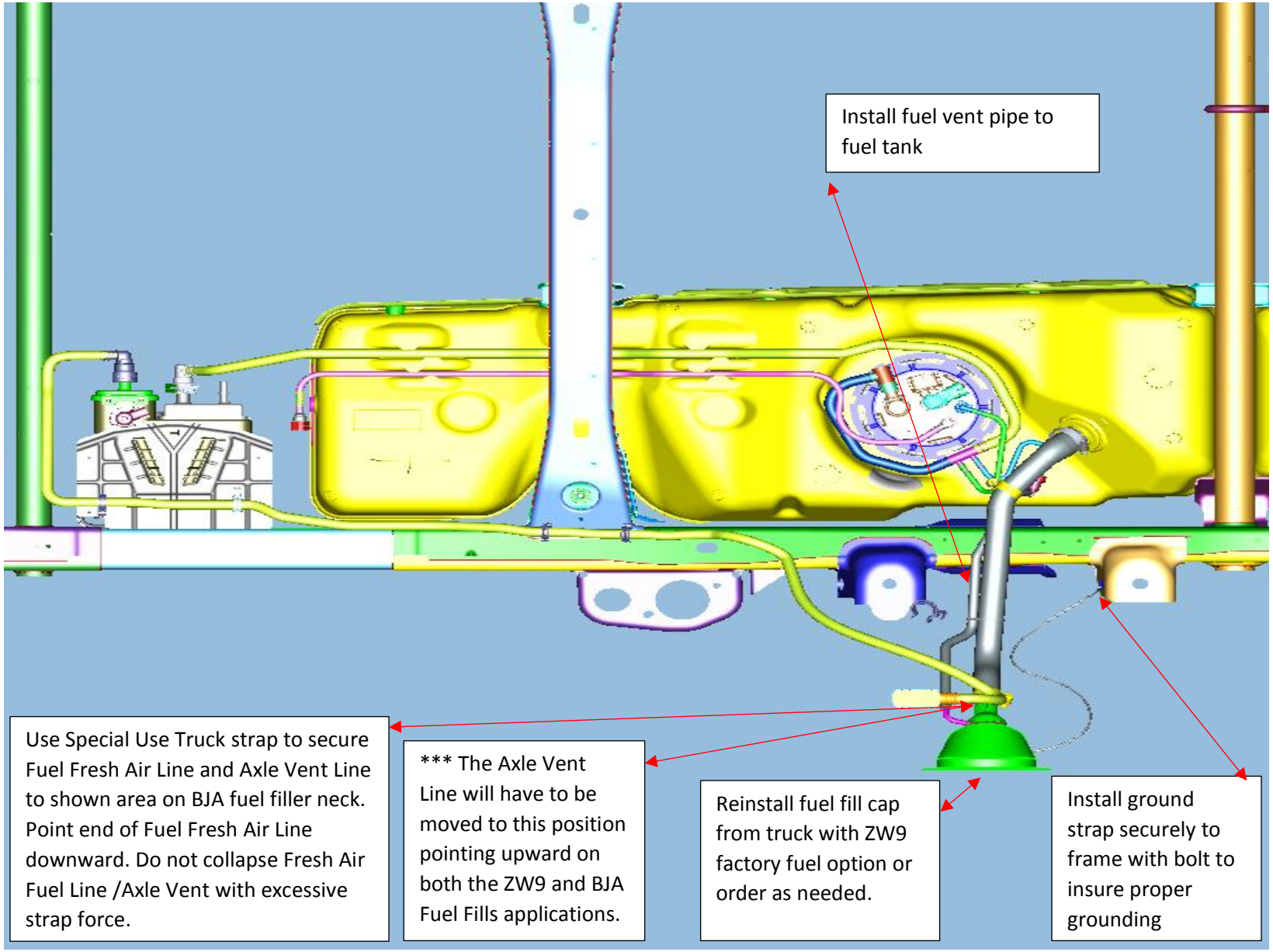
## Chevrolet Colorado/GMC Canyon (1/T) ZW9 Option & RPO BJA non-E85 Fuel Filler Torque Values



## Fuel Fresh Air Line Removal Graphic for fitting to RPO BJA Fuel Fill Pipe


Remove any cap, tarp or any other UV protection prior to upfit. Upfit should protect top of fuel sending unit from UV
Carefully remove Fresh Air Line from factory fuel filler neck for later attachment to RPO BJA fuel filler asm.

## Fuel Air Fuel Line & Axle Vent Tube Installation Graphic for RPO ZW9 / RPO BJA

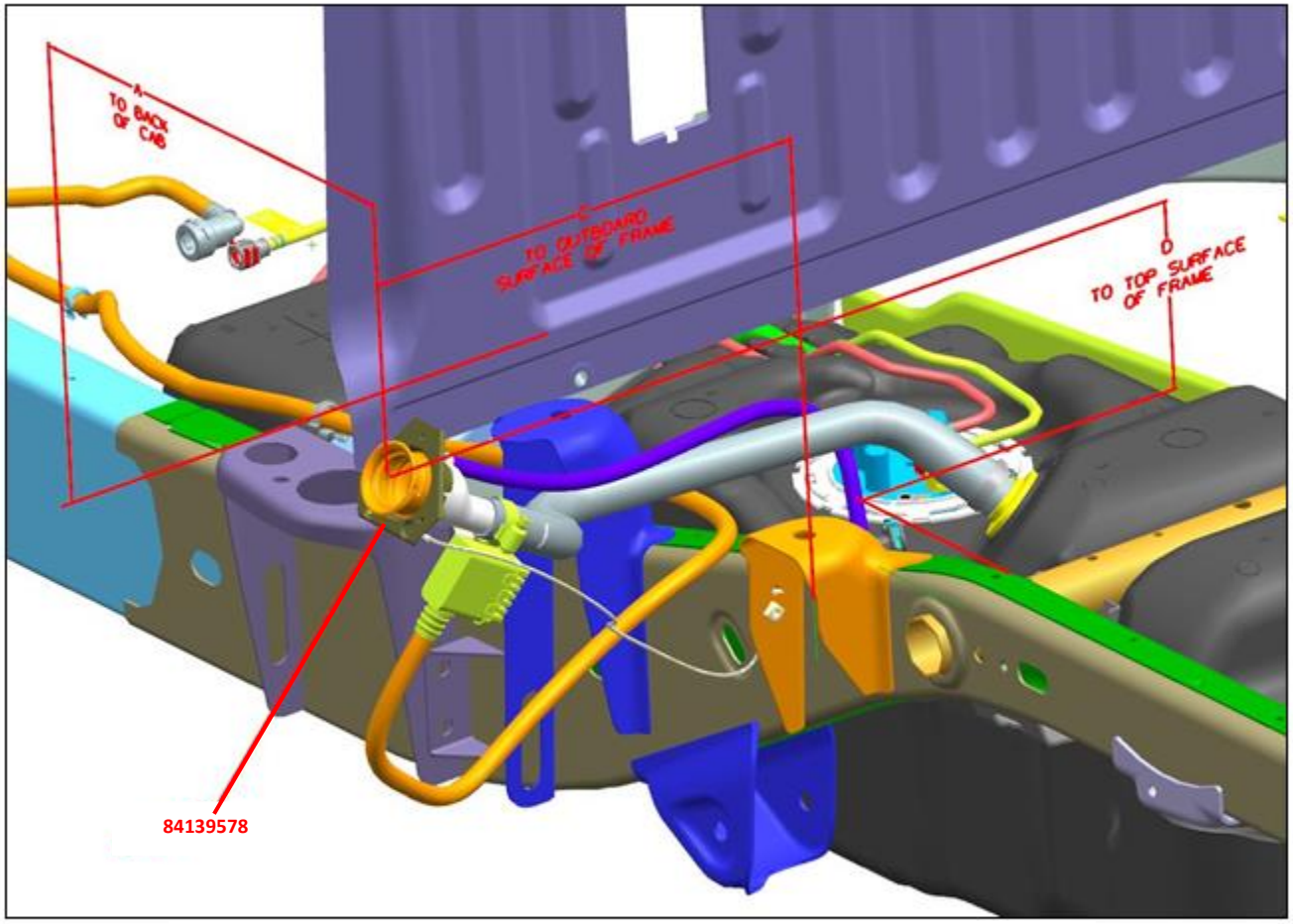

Install fuel vent pipe to fuel tank
Use Special Use Truck strap to secure Fuel Fresh Air Line and Axle Vent Line to shown area on BJA fuel filler neck. Point end of Fuel Fresh Air Line downward. Do not collapse Fresh Air Fuel Line /Axle Vent with excessive strap force.
*** The Axle Vent Line will have to be moved to this position pointing upward on both the ZW9 and BJA Fuel Fills applications.
Reinstall fuel fill cap from truck with ZW9 factory fuel option or order as needed.
Install ground strap securely to frame with bolt to insure proper grounding

## Box Removed RPO ZW9 Fuel Fill System for Gasoline fueled Vehicles with Standard Fuel Filler Pipe (NON RPO BJA Fuel Fill Pipe System)

Certain guidelines must be adhered to in mounting the fuel fill, fuel vent system systems, axle vent and grounding to ensure that the completed product meets the manufacturer's requirements.

1. The fuel fill, fuel vent lines and other associated components must be installed in the position shown to maintain compliance to FMVSS Regulations and other guidelines. There should be adequate clearance between them and the chassis parts under all operating conditions, including protection from road debris. Body attachment brackets must also be located such that there is adequate clearance to all fuel system components, such as the fuel lines, fuel vent lines, and the fuel level sending unit, under all operating conditions. This also applies to the axle vent system and grounding system.
2. Removal of any and all shipping fuel tank protection consisting of wraps or covers must be done prior to upfit of truck. The truck should not be exposed to the environment without these wraps or covers being in place prior to upfit.
3. The fuel fill and fuel fresh air line vent hoses must be routed (and supported, if needed such that there are no sags or kinks. routing and location shown on page PB-12 of this document are required in order to meet vehicle Federal US EPA and California emission and certification requirements with the factory installed RPO ZW9 fuel filler pipe.
4. The fuel fill, fuel fresh air line, fuel vent system, grounding wires and axle vent hose should be restrained in the upfit vehicle. This is necessary to avoid chaffing, fretting, rubbing, perforation, etc. which may cause failure to pipes and hoses.
5. The fuel fill pipe inlet area of the fill pipe assembly maintained at 35 degrees from ground (horizontal).
6. Both the fill, fuel vent hoses and axle vent must be routed (and supported, if needed) such that there are no sags or kinks. As viewed from the filler neck, pipes and hoses must have a min downward slope of 4º of downward slope at any location.
7. A minimum of 8.0 inches of fill hose must be maintained between the filler neck and the fuel tank as measured in an outboard direction from the tank surface (at the fill hose nipple) to the outlet end of the filler neck.
8. Insure the end of the fuel fresh air line points down to prevent moisture intrusion. Also secure the end of the axle vent tube in the same area facing upward on fuel fill pipe **84139578**. Install axle vent so the shipping attachment barb does not cause chaffing on any other components. Secure with Special Use Strap Truck PN **11509086/87** and trim off excess. See PB-10 for typical installation. Screw on fuel fill cap part number **23361879** to complete.
9. **Inspect and make corrections to the fuel system to make sure there are NO Openings or unmade connections that will allow the escape of liquid fuel or fuel vapors**.

## T/1 ZW9/Box Removal PU Fuel Filler/Positioning




**Fuel Filler Inlet* Location & Position Tolerances**

| | | |
|---|---|---|
| A | 414.6 mm (16.32") | +/- 50.8 mm (2") |
| C | 401.5 mm (15.81") | +/- 50.8 mm (2") |
| D | 157.5 mm (6.20") | + 50.8 mm (2") |

*Fuel Filler Inlet location & routing within above tolerance zone are validated by GM to meet Federal requirements.